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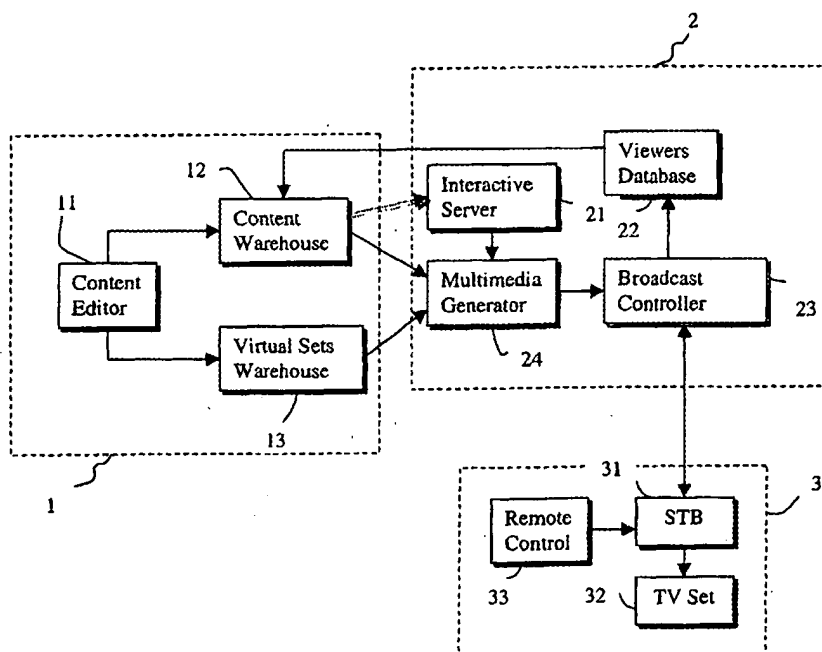
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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

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(54) Title: **INTERACTIVE SYSTEM AND METHOD FOR GENERATING PROGRAM**



(57) Abstract: Briefly, in accordance with embodiments of the invention, a method and a system for generating an interactive program show (110) in a real time by combining a text content with a multimedia content (120) at a broadcast center (130).

WO 03/012624 A1

## INTERACTIVE SYSTEM AND METHOD FOR GENERATING PROGRAM

FIELD OF THE INVENTION

The present invention relates generally to generating interactive program shows, and more particularly for a method and a system for generating and broadcasting  
5 interactive programs show over an Interactive Television networks.

BACKGROUND OF THE INVENTION

In Interactive Television networks, a service provider may broadcast several types of programs such as movies, Information at text channels (e.g. Teletext), sport invents, games and etc. A subscriber of the interactive television (TV) network may  
10 response to the received program show by activating a remote control of an Interactive set top box (STB). The STB may distribute the service provider channels to the subscriber and interacts between the service provider to the subscriber which may be a viewer of a program shows. The Service Provider network may includes Cable, Internet, Satellite, wireless communication network, and the like. The service provider  
15 receives the subscriber responses to the program shows and may use the information for generating programs according to each subscriber profile and skills. An example of such program shows may be interactive games. An example of such a game may be a Trivia game. The Trivia game may be played on a games channel. The viewer may play the game by using the remote control of The Interactive TV box to select an  
20 answer of the trivia questionnaire. The answers may be transmitted to the service provider through the STB and may be analyzed by a service provider server.

Thus, there is a continuing need for better ways to generate interactive program shows on Interactive TV channels according to the viewer game playing level.

## SUMMARY OF THE INVENTION

In accordance with one embodiment of the invention, a method and a system for generating an interactive program show in a real time by combining a text content with a multimedia content at a broadcast center.

### 5           WHAT ARE THE ADVANTAGES OVER PRIOR ART

## BRIEF DESCRIPTION OF THE DRAWINGS

The subject matter regarded as the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, both as to organization and method of operation, together with objects, features, and  
10 advantages thereof, may best be understood by reference to the following detailed description when read with the accompanying drawings in which:

FIG. 1 is a block diagram of an Interactive television system according to an embodiment the invention;

FIG. 2 is a flowchart of a method of generating an program show according to an  
15 embodiment of the present invention; and

FIG. 3 is a flowchart of a method of playing interactive Trivia game which is an example of an embodiment of the present invention.

## DETAILED DESCRIPTION

20           In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those skilled in the art that the present invention may be practiced without these specific details. In other instances, well-known methods, procedures, components and circuits have not been described in detail so as not to obscure the  
25 present invention.

An algorithm is here, and generally, considered to be a self-consistent sequence of acts or operations leading to a desired result. These include physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined,

5 compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers or the like. It should be understood, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities.

10 Unless specifically stated otherwise, as apparent from the following discussions, it is appreciated that throughout the specification discussions utilizing terms such as "processing," "computing," "calculating," "determining," or the like, refer to the action and/or processes of a computer or computing system, or similar electronic computing device, that manipulate and/or transform data represented as physical, such as  
15 electronic, quantities within the computing system's registers and/or memories into other data similarly represented as physical quantities within the computing system's memories, registers or other such information storage, transmission or display devices.

Embodiments of the present invention may include apparatuses and systems for performing the operations herein. This apparatus and systems may be specially  
20 constructed for the desired purposes, or it may comprise a general purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a computer readable storage medium, such as, but is not limited to, any type of disk including floppy disks, optical disks, CD-ROMs, magnetic-optical disks, read-only memories (ROMs), random access memories  
25 (RAMs), electrically programmable read-only memories (EPROMs), electrically erasable and programmable read only memories (EEPROMs), magnetic or optical cards, or any

other type of media suitable for storing electronic instructions, and capable of being coupled to a computer system bus.

It should be understood that the present invention may be used in a variety of applications. Although the present invention is not limited in this respect, the method of  
5 generating game which disclosed herein may be used in many television networks such as in Cable TV networks, Satellite TV networks, WEB TV networks and other networks which may be adapted to the above method.

Types of Interactive TV systems intended to be within the scope of the present invention include, although not limited to, Public TV, Cable TV, Satellite TV, WEB TV  
10 and etc.

Referring firstly to Fig. 1, an interactive television system 10 is shown. The system 10 includes at least three subsystems, an interactive programs generator 1, a broadcast center 2 and a subscriber system 3. The interactive program generator includes a content editor 11, a content warehouse 12 and a virtual sets warehouse 13.  
15 The broadcast center 2 includes a broadcast controller 23, viewers database 22, an interactive server 21 and a multimedia generator 24. The viewer system 3 includes a set top box (STB) 31 a remote control 32 and a television set (TV) 33.

In operation, a program may be generate, in a real time or not, at the interactive program generator 1. An example of such program show may be a Trivia game. The  
20 program show may be transferred to the broadcast center 2 at two different channels. The broadcast center 2 may combine the data from the at least two channels to generate a program show. The broadcast center 2 may broadcast the program show to the viewer system 3. The STB 31 of the viewer system 3 receives the broadcasted program show from broadcast center 2. The STB 31 plays the program show, for  
25 example the Trivia game, on the viewer TV set 33. The viewer may interactively response to the broadcasted program show. The viewer responses may be analyzed

by a service provider at the broadcast center 2 and the results of said analyzing, such as viewer score and viewer playing game level, may be included at the following program shows. For example, the viewer score and position at table of winners at the second stage of the trivia game, which may broadcasted to the same viewer.

5       A detail description of generating the program show, for example, the trivia game will be given now. An editor may feed a content of the program at the content editor 11. The content may includes the number of the questions, the question text itself, the number of answers for each question, specifying the correct answer, score for each answer, different response for each answer, "tips" for the right answer, different stages  
10 or levels, a time limit to answer a question and a text of at least one question. It will be appreciated by a person skilled in the art that the content above is shown by a way of example only. Other types of content may be feed by the editor for different type of programs rather than games. The content editor 11 may be a module of computer software or may relay in a terminal of a computer. The content which was generated at  
15 the content editor 11 may be stored at the content warehouse 12. The content warehouse 12 may be any type of mass storage device such as computer memory, CD ROM, floppy disk, Hard drive, magnetic memory and etc. The content editor 11 may also generate graphics which may includes sounds titles and animation. The graphics may be used in the program show or may be selected from graphics which may be  
20 store at the virtual sets warehouse 13. The virtual sets warehouse 13 may be any type of computer readable storage medium such as computer memory, CD ROM, floppy disk, Hard drive, magnetic memory and etc. The virtual sets warehouse 13 may include any type of multimedia content.

The Interactive program generator 1 may be a software program which includes  
25 the content editor 11, and may access the content warehouse 12 and the virtual sets warehouse 13.

The program which has been generated by the Interactive program generator 1, e.g. Interactive Trivia game, may be transfer by means of computer network to the broadcast center 2. The program may be transfer by two channels. The first channel may transfer the text content and game logic of the program and the second channel  
5 may transfer the graphics. The text content may be relay at a text file or MPEG file which may be stored at the content warehouse 12. The multimedia content may be included in an MPEG file or any other type of a data file and may be stored at the virtual sets warehouse 13.

The multimedia generator 24 may combine the content which was edit by the  
10 content editor 11 and stored at the content warehouse 12 with the multimedia content from virtual sets warehouse 13 to generate the program, for example, the Trivia game. The multimedia generator 24 may be a software module which relay in a computer program.

The broadcast controller 23 receives the program from the multimedia generator  
15 24 and broadcast the program by one of the channels of the television network to the STB 31. The broadcast controller 23 may combine the data from the at least two channels and to generate the Interactive television program. The broadcast controller 23 may control and monitor all elements of the program show. The program controller 23 may change the text content and the multimedia content in a real time. The STB 31  
20 receives the program from the broadcast controller 23 and plays the program show on the viewer TV set 32. The viewer participates in the program show by using the remote control 33, for example selecting one answer out of four. The viewer database 22 receives the viewer responses and may arrange the answers in a special database. Information related to the program being broadcast is relayed back to the broadcast  
25 controller 23 while other data may be classified and add to the special database. The data from the viewer database 22 may be transfer to the content warehouse 12 and may

be used in a newer program. The viewer database 22 may be any type of computer readable storage medium such as CD ROM, floppy disk, Hard drive, magnetic memory and etc.

5 The interactive server 21 may operate and integrate advance interactive technologies, enabling the viewers to participate in the program shows. The interactive server 21 may patch an interactive channel into the multimedia generator 24.

Referring now to Fig. 2 a method of generating an interactive program according to an embodiment of the invention is shown. The first step, step 100 the editor edits the text content of the program show at the content editor 11. The editor generating the  
10 program show by combining content from the content warehouse 12 with multimedia content from virtual sets warehouse 13 as is shown in block 110. The multimedia content may include sounds, titles and animation and backgrounds. The editor may also edit new text content and store it in the content warehouse 12 or edit new multimedia content and store it in the virtual sets warehouse 13. The text content and  
15 the multimedia content are transferred to the multimedia generator 24 at the broadcast center 2. The text content may be transfer to the broadcast center 2 over a first channel and the multimedia content may be transfer to the broadcast center 2 over a second channel. The multimedia generator 24 combines the text content from the first channel with the multimedia content from the second channel and generate an  
20 interactive program show, as is shown on 120. The multimedia generator 24 may transfer the interactive program show to the broadcast controller 23, as is shown in 130. The broadcast controller 23 set a broadcast time, as is shown in 140. The broadcast controller 23 broadcasts the interactive program show over an interactive TV channel to the viewer on the programmed time, as is shown 150.

25 An example of the program show may be the Interactive Trivia game. Turning now to FIG. 3, a flowchart of the Interactive Trivia game according to an embodiment of



the invention is shown. Firstly, at the broadcast center 2 setting up the game start up time and the channel in which the game is broadcasted, as is shown in 200. Then, broadcasting the game at the time and the channel which was set up. A first episode of the game may be a background music followed by a banner saying, for example, "first  
5 question out of 10" and the text of the first question as is shown in 220, and four possible answers as is shown in 230. The viewer select one answer using the remote control 33, as is shown in 240. The viewer answer to the question may be broadcast to the broadcast center 2, through at least one of interactive TV channels. The viewer database 22 may check the answer. If the answer is right, as is shown in 250, the  
10 broadcast controller 23 may broadcast to the viewer a "success" sound and animation. The broadcast controller may also reward the viewer with point and to broadcast an updated score as is shown in 260. If the answer is wrong, as is shown in 250, the broadcast controller 23 may broadcast to the viewer a "fail" sound and animation and may broadcast the next question. When the viewer send the answer to the last  
15 question, as is show in 210, the broadcast controller 23 may broadcast to the user a general high score table and marking the viewer position in the table.

The rolls for the above described Trivia game may be:

- 1) Each game includes 10 successive questions.
- 2) There is no time limit to answer the question
- 20 3) Each question may have four possible answers.
- 4) The viewer may select the answer by pushing one of "A", "B", "C" or "D" of the remote control.
- 5) The viewer may award 1000 point for right answer and zero points for wrong answer.

25 Although it should be understood that the role of the game may be changed and the above rolls are shown as example only.

Although it should be understood that the scope and application of the present invention is in no way limited to these applications.

By now it should be appreciated that the present invention provides a method and a system for generating an interactive programs shows in a real time for Interactive  
5 TV networks.. The present invention provides for, among other things, the use of software or firmware to generate the Interactive program shaw.

While certain features of the invention have been illustrated and described herein, many modifications, substitutions, changes, and equivalents will now occur to those skilled in the art. It is, therefore, to be understood that the appended claims are  
10 intended to cover all such modifications and changes as fall within the true spirit of the invention.

Claims:

1. A method comprising:  
generating at a broadcast center an interactive program show in a real  
time by combining an interactive application received with a first channel with a  
show content received with a second channel.  
5
2. The method of claim 1 further comprising:  
combining a text content with a multimedia content to provide the show  
content of the program show.  
10
3. The method of claim 1 further comprising:  
combining the text content of the program show with an interactive  
application template to provide the interactive application.
- 15 4. The method of claim 1, wherein generating comprises editing the text content  
and the multimedia content at a content editor.
5. The method of claim 4, further comprising:  
storing the text content at a content warehouse; and  
20 storing the multimedia content at a virtual sets warehouse.
6. The method of claim 5, further comprising:  
broadcasting the program show to a set up box on a viewer system and  
playing the program show by the set up box on a television set of the viewer  
25 system.

7. The method of claim 6, further comprising:

participating in the program show; and

transmitting a response to the viewer system according to the viewer system responses on the program show.

5

8. The method of claim 7, further comprising:

generating a second program show according to a viewer skill level which is generated according to viewer system responses to the program show.

- 10 9. A interactive television system comprising:

A multimedia generator of a broadcast center which is adapted to generate an interactive program show in a real time by combining an interactive application received with a first channel with a show content received with a second channel.

15

10. The interactive television system of claim 9, wherein the multimedia generator which is adapted to combine a text content with a multimedia content an with the interactive program template to provide the show content of the program show.

- 20 11. The interactive television system of claim 9, the broadcast center further comprising:

an interactive server is adapted to combine the text content of the program show with the interactive application template to provide the interactive application.

25

12. The interactive television system of claim 9, further comprising:

a program generator comprises:

a content editor which is adapted to edit the text content and the multimedia content;

a content warehouse which is adapted to store the text content;

5 and

a virtual sets warehouse which is adapted to store the multimedia content.

13. The interactive television system of claim 12, further comprising:

10 a viewer system; and

the broadcast center further comprising an interactive broadcast generator which is adapted to broadcast the program show to a set up box of the viewer system, wherein the set up box is adapted to play the program show on a television set of the viewer system.

15

14. The interactive television system of claim 13, wherein the viewer system further comprising:

A remote control which is adapted to transmit responses to the show to a viewer database of the broadcast center.

20

15. The interactive television system of claim 14, wherein the viewer database is adapted to interact with the viewer system.

16. The interactive television system of claim 15, wherein the interactive program generator is adapted to a computer program.

25

17. The interactive television system of claim 16, wherein the text content and the multimedia content are adapted to motion picture engineering group (MPEG) format.

5 18. A interactive television program generator comprising:

A multimedia generator of a broadcast center which is adapted to generate an interactive program show in a real time by combining an interactive application received with a first channel with a show content received with a second channel.

10

19. The interactive television program generator of claim 18, wherein the multimedia generator which is adapted to combine a text content with a multimedia content an with the interactive program template to provide the show content of the program show.

15

20. The interactive television program generator of claim 18, the broadcast center further comprising:

an interactive server is adapted to combine the text content of the program show with the interactive application template to provide the interactive application.

20

21. The interactive television program generator of claim 18, further comprising:

a program generator comprises:

a content editor which is adapted to edit the text content and the multimedia content;

25

a content warehouse which is adapted to store the text content;

and

a virtual sets warehouse which is adapted to store the multimedia content.

- 5 22. The interactive television program generator of claim 18, further comprising:  
a viewer system; and  
the broadcast center further comprising an interactive broadcast generator  
which is adapted to broadcast the program show to a set up box of the viewer  
system, wherein the set up box is adapted to play the program show on a  
10 television set of the viewer system.
23. The interactive television program generator of claim 22, wherein the viewer  
system further comprising:  
A remote control which is adapted to transmit responses to the show to a  
15 viewer database of the broadcast center.
24. The interactive television program generator of claim 23, wherein the viewer  
database is adapted to interact with the viewer system.
- 20 25. The interactive television program generator of claim 24, wherein the interactive  
program generator is adapted to a computer program.
26. The interactive television game generator of claim 25, wherein the text content  
and the multimedia content are adapted to motion picture engineering group  
25 (MPEG) format.

27. An article comprising: a storage medium having stored thereon instructions, that when executed by a computing platform, result in:

generating an interactive program show in a real time by combining an interactive received with a first channel with a multimedia content received with a second channel.

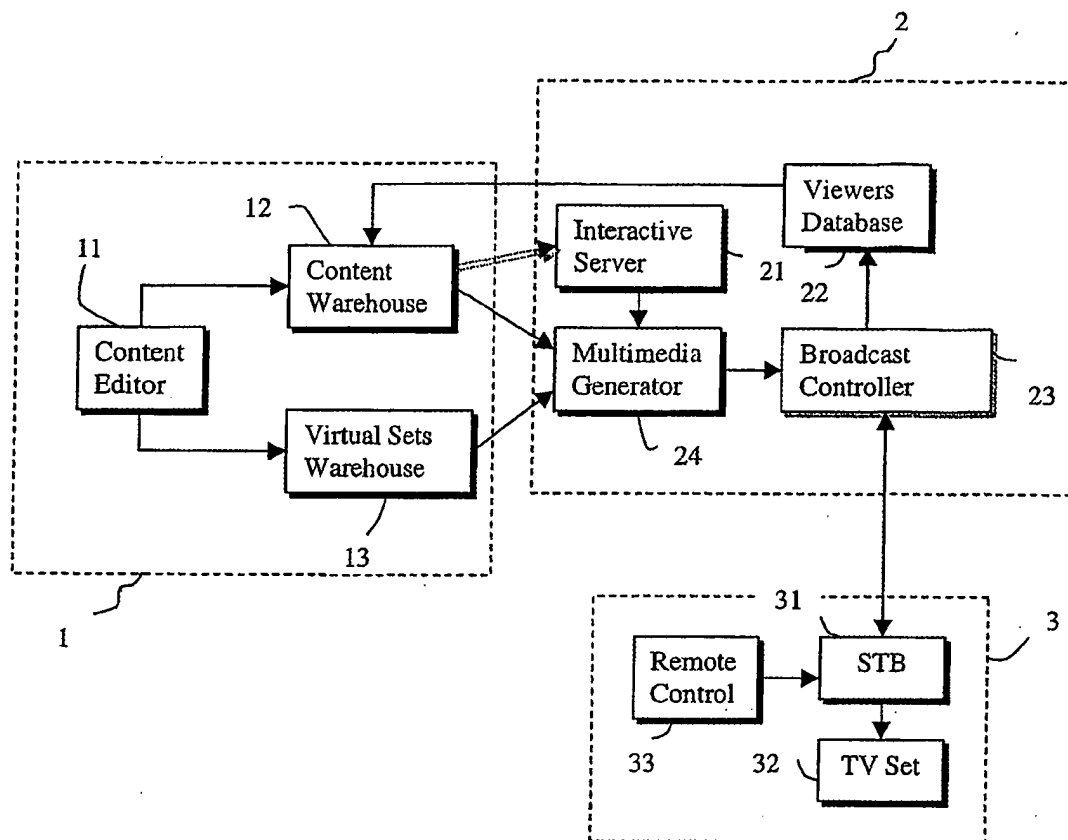
5

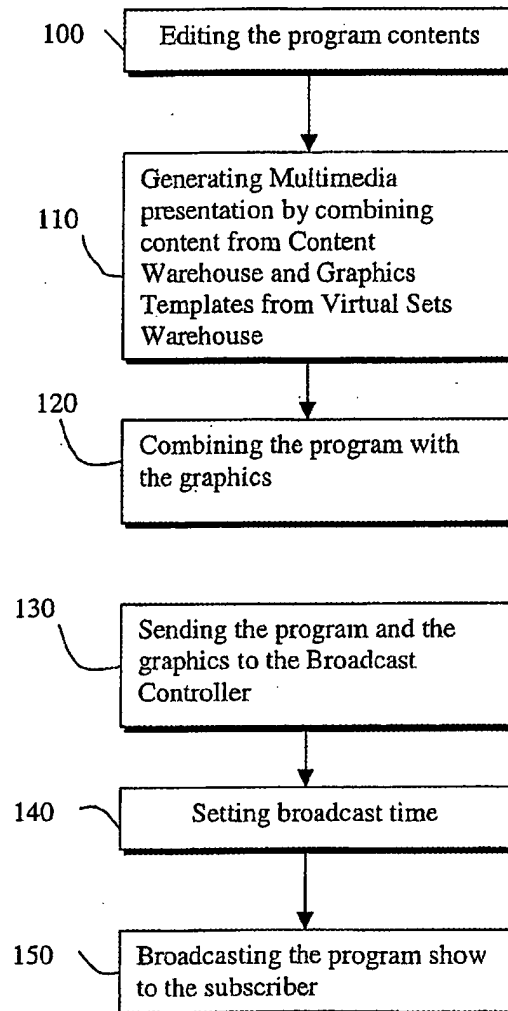
28. The article of claim 24 further result in:

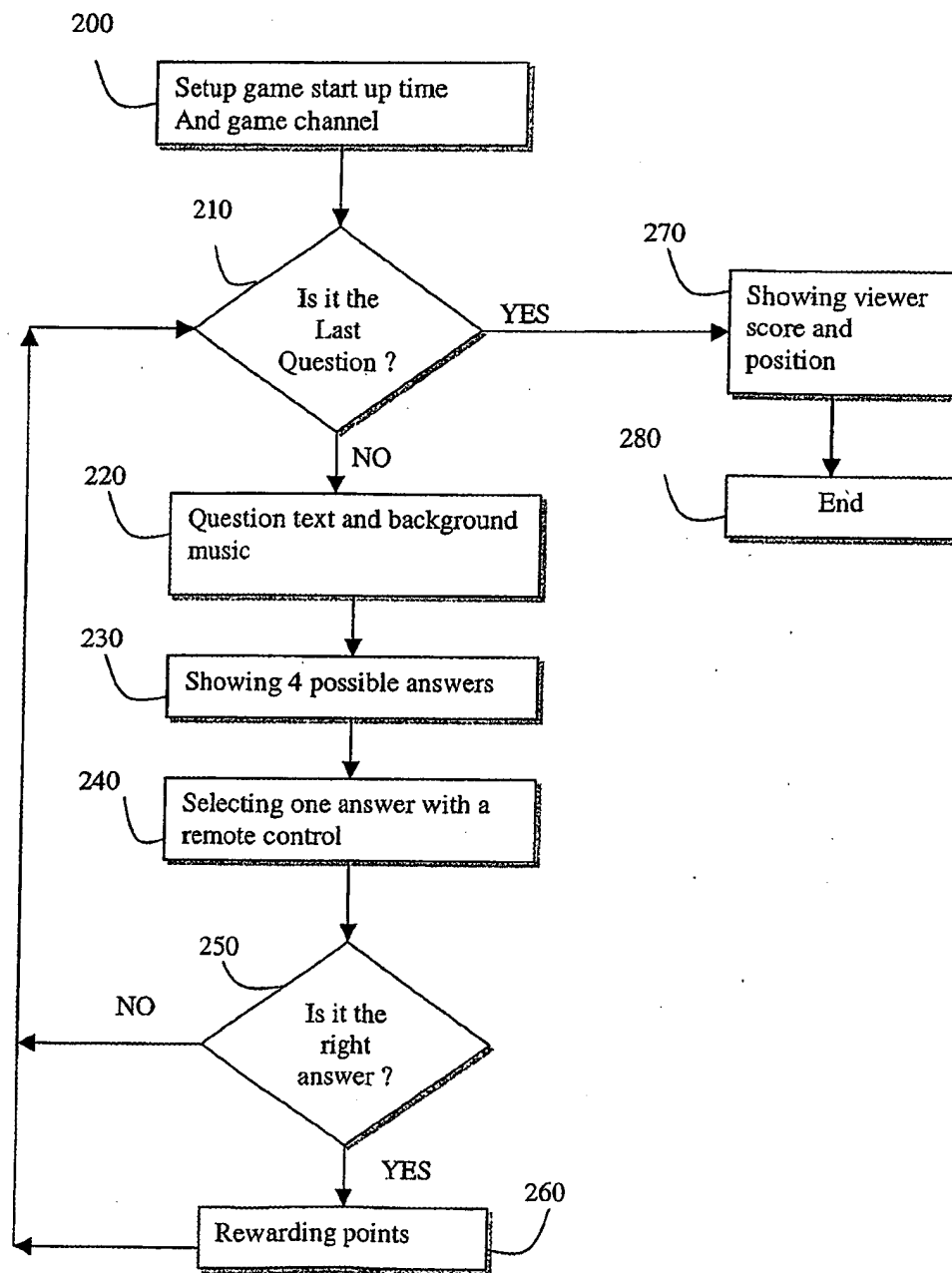
Instructions of playing the program show by a set up box.

10



**FIG. 1**

**FIG. 2**

*FIG.3*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL01/00699

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 3/14

US CL : 345/745

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/745,744,756,740,689;717/105,109.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,889,506 A (LOPRESTI, et al.) 30 March 2000, column 4-8, and fig 1, and 12-17	1-28
X, P	US 6,295,057 B1 (ROSIN, et al.) 25 September 2001, column 3, 20-45 Column 3, 20-45, fig 1, 10-13.	1-19 ----- 20-28
Y	US 6,091,411 A (STRAUB, et al.) 18 July 2000, fig 3, column 4, 10-45.	1-28
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Y	US 6,166,730 A (GOOD, et al.) 26 December, figs 2, and 8-10.	1-28

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

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